

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

K.C., *et al.*,

Plaintiffs,

v.

No. 1:23-CV-595

THE INDIVIDUAL MEMBERS OF THE
MEDICAL LICENSING BOARD OF
INDIANA, in their official capacities, *et al.*,

Defendants.

EXPERT DECLARATION OF DANIEL SHUMER, M.D.

I, Daniel Shumer, M.D., hereby declare and state as follows:

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. I have actual knowledge of the matters stated herein. If called to testify in this matter, I would testify truthfully and based on my expert opinion.

I. BACKGROUND AND QUALIFICATIONS

A. Qualifications

3. I am a Pediatric Endocrinologist, Associate Professor of Pediatrics, and the Clinical Director of the Child and Adolescent Gender Clinic at Mott Children's Hospital at Michigan Medicine. I am also the Medical Director of the Comprehensive Gender Services Program at Michigan Medicine, University of Michigan.

4. I am Board Certified in Pediatrics and Pediatric Endocrinology by the American Board of Pediatrics and licensed to practice medicine in the state of Michigan.

5. I received my medical degree from Northwestern University in 2008. After completing a Residency in Pediatrics at Vermont Children's Hospital, I began a Fellowship in Pediatric Endocrinology at Harvard University's Boston Children's Hospital. Concurrent with the Fellowship, I completed a Master of Public Health from Harvard's T.H. Chan School of Public Health. I completed both the Fellowship and the MPH degree in 2015.

6. I have extensive experience working with and treating children and adolescents with endocrine conditions including differences in sex development (DSD) (also referred to as intersex conditions), gender dysphoria, type 1 diabetes, thyroid disorders, growth problems, and delayed or precocious puberty. I have been treating patients with gender dysphoria as a pediatric endocrinologist since 2015.

7. A major focus of my clinical, teaching, and research work pertains to the assessment and medical management of transgender adolescents.

8. I have published extensively on the topic of gender identity in pediatrics and the treatment of gender dysphoria, as well as reviewed the peer-reviewed literature concerning medical treatments for gender dysphoria, the current standards of care the treatment of gender dysphoria, and research articles on a variety of topics with a focus on mental health in transgender adolescents.

9. I am involved in education of medical trainees. I am the Fellowship Director in the Division of Pediatric Endocrinology, Education Lead for the Division of Pediatric Endocrinology, and Course Director for a medical student elective in Transgender Medicine. My additional academic duties as an Associate Professor include teaching several lectures, including those entitled "Puberty," "Transgender Medicine," and "Pediatric Growth and Development."

10. As a Fellow at Harvard, I was mentored by Dr. Norman Spack. Dr. Spack established the Gender Management Services Clinic (GeMS) at Boston Children's Hospital. While working and training at GeMS, I became a clinical expert in the field of transgender medicine within Pediatric Endocrinology and began conducting research on gender identity, gender dysphoria, and the evaluation and management of gender dysphoria in children and adolescents.

11. Based on my work at GeMS, I was recruited to establish a similar program assessing and treating gender diverse and transgender children and adolescents at the C.S. Mott Children's Hospital in Ann Arbor. In October 2015, I founded the hospital's Child and Adolescent Gender Services Clinic.

12. The Child and Adolescent Gender Services Clinic has treated over 600 patients since its founding. The clinic provides comprehensive assessment, and when appropriate, treatment with pubertal suppression and hormonal therapies, to patients diagnosed with gender dysphoria. I have personally evaluated and treated over 400 patients with gender dysphoria. The majority of the patients receiving care range between 10 and 21 years old. Most patients that we assess and treat at the clinic live in Michigan or Ohio. As the Clinical Director, I oversee the clinical practice, which currently includes 4 physicians (including 1 psychiatrist), 1 nurse practitioner, 2 social workers, 1 research coordinator, as well as nursing and administrative staff. I also actively conduct research related to transgender medicine, gender dysphoria treatment, and mental health concerns specific to transgender youth.

13. I also provide care in the Differences/Disorders of Sex Development (DSD) Clinic at Michigan Medicine at Mott Children's Hospital. The DSD Clinic is a multidisciplinary clinic focused on providing care to infants and children with differences in the typical path of sex development, which may be influenced by the arrangement of sex chromosomes, the functioning

of our gonads (i.e. testes, ovaries), and our bodies' response to hormones. The clinic is comprised of members from Pediatric Endocrinology, Genetics, Psychology, Urology, Gynecology, Surgery, and Social Work. In this clinic I have assessed and treated over 100 patients with DSD.

14. In my role as Medical Director of the Comprehensive Gender Services Program (CGSP), I lead Michigan Medicine's broader efforts related to transgender services. CGSP is comprised of providers from across the health system including pediatric care, adult hormone provision, gynecologic services, adult surgical services, speech/language therapy, mental health services, and primary care. I run monthly meetings with representatives from these areas to help coordinate communication between Departments. I coordinate strategic planning aimed to improve care within the health system related to our transgender population. I also serve as the medical representative for CGSP in discussions with health system administrators and outside entities.

15. I have authored numerous peer-reviewed articles related to treatment of transgender youth. I have also co-authored chapters of medical textbooks related to medical management of transgender patients. I have been invited to speak at numerous hospitals, clinics, and conferences on topics related to clinical care and standards for treating transgender children and youth.

16. The information provided regarding my professional background, experiences, publications, and presentations is detailed in my curriculum vitae, a true and correct copy of the most up-to-date version of which is attached as **Exhibit A**.

B. Prior Testimony

17. In the past four years, I have been retained as an expert and provided testimony at trial or by deposition in the following cases: *Boe, et al. v. Marshall et al.*, No. 2:22-cv-184-LCB-CWB (US District Court for the Middle District of Alabama Northern Division); *Roe et al v. Utah*

High School Activities Association et al (Third District Court in and for Salt Lake County, UT); *Menefee v. City of Huntsville Bd. of Educ.*, No. 5:18-cv-01481 (N.D. Ala.); and *Dekker, et al., v. Weida, et al.*, No. 4:22-cv-00325 (N.D. Fla). I also provided expert witness testimony on behalf of a parent in a custody dispute involving a transgender child in the following case: *In the Interest of Younger*, No. DF-15-09887 (Dallas County, Texas).

C. Compensation

18. I am being compensated at an hourly rate for the actual time that I devote to this case, at the rate of \$400 per hour for any review of records, preparation of reports, declarations, and deposition and trial testimony. My compensation does not depend on the outcome of this litigation, the opinions that I express, or the testimony that I provide.

D. Bases for Opinions

19. This declaration sets forth my opinions in this case and the bases for my opinions.

20. In preparing this declaration I reviewed the Indiana Senate Enrolled Act 480 (hereafter, “S.E.A. 480”, “the Act” or “the ban”).

21. I have also reviewed the materials cited here, as well as the materials listed within my curriculum vitae, which is attached as **Exhibit A**. The sources cited therein include authoritative, scientific peer-reviewed publications. They include the documents specifically cited as supportive examples in particular sections of this report. I may rely on these materials as additional support for my opinions.

22. In addition, I have relied on my scientific education, training, and years of clinical and research experience, and my knowledge of the scientific literature in the pertinent fields.

23. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study regularly rely upon when forming opinions on these subjects.

24. To the best of my knowledge, I have not met or spoken with the Plaintiffs or their parents. My opinions are based solely on my extensive background and experience treating transgender patients.

25. I may wish to supplement or revise these opinions or the bases for them due to new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

II. EXPERT OPINIONS

A. MEDICAL AND SCIENTIFIC BACKGROUND ON SEX AND GENDER IDENTITY

26. *Sex* is comprised of several components, including, among others, internal reproductive organs, external genitalia, chromosomes, hormones, gender identity, and secondary sex characteristics (IOM, 2011).

27. *Gender identity* is the medical term for a person's internal sense of belonging to a particular sex. Everyone has a gender identity. The term *transgender* refers to individuals whose gender identity does not align with their sex assigned at birth (Shumer, et al., 2013).

28. A person's understanding of their gender identity may evolve over time in the natural course of their life, however, attempts to force transgender people to align their gender identity with their birth sex (sometimes described as "conversion therapy") have been found to be both harmful and ineffective. In one study, transgender adults who recall previous attempts from healthcare professionals to alter their gender identity reported an increase in lifetime suicide

attempts and higher rates of severe psychological distress in the present (Turban, et al., 2020a). In another study, exposure to these types of attempts were found to increase the likelihood that a transgender adolescent will attempt suicide by 55% and more than double the risk for running away from home (Campbell, et al., 2002). Those practices have been denounced as unethical by all major professional associations of medical and mental health professionals, such as the American Medical Association, the American Academy of Pediatrics, the American Psychiatric Association, and the American Psychological Association, among others (Fish, et al., 2022).

29. Scientific research and medical literature across disciplines demonstrates that gender identity, like other components of sex, has a strong biological foundation. For example, there are numerous studies detailing the similarities in the brain structures of transgender and non-transgender people with the same gender identity (Luders, et al., 2009; Rametti, et al., 2011; Berglund, et al., 2008; Savic, et al., 2011). In one such study, the volume of the bed nucleus of the *stria terminalis* (a collection of cells in the central brain) in transgender women was equivalent to the volume found in cisgender women (Chung, et al., 2002).

B. ASSESSMENT OF GENDER DYSPHORIA IN CHILDREN, ADOLESCENTS, AND ADULTS

30. Due to the incongruence between their assigned sex and gender identity, transgender people experience varying degrees of gender dysphoria, a serious medical condition defined in both the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5 TR) (APA, 2022).

31. *Gender Dysphoria* is defined as an incongruence between a patient's assigned sex and their gender identity present for at least six months, which causes clinically important distress in the person's life. This distress is further defined as impairment in social, occupational, or other

important areas of functioning (APA, 2022). Additional features may include a strong desire to be rid of one's primary or secondary sex characteristics, a strong desire to be treated as a member of the identified gender, or a strong conviction that one has the typical feelings of identified gender (APA, 2022).

32. The *Standards of Care for the Health of Transgender and Gender Diverse People, Version 8* ("SOC 8"), published by the World Professional Association for Transgender Health (WPATH), provides guidance to clinicians on how to provide comprehensive assessment and care to children and adolescents with gender dysphoria based on the best available medical evidence. These standards recommend involving relevant disciplines, including mental health and medical professionals, to reach a decision with families about whether medical interventions are appropriate and remain indicated through the course of treatment.

33. For transgender adolescents, all treatment decisions are made in consultation with the adolescent and the adolescent's parent or guardian with the parent or guardian providing ultimate consent for treatment.

C. EVIDENCE-BASED CLINICAL PRACTICE GUIDELINES FOR THE TREATMENT OF GENDER DYSPHORIA IN CHILDREN, ADOLESCENTS AND ADULTS

34. The goal of any intervention for gender dysphoria is to reduce dysphoria, improve functioning, and prevent the harms caused by untreated gender dysphoria.

35. Gender dysphoria is highly treatable and can be effectively managed. If left untreated, however, it can result in severe anxiety and depression, eating disorders, substance abuse, self-harm, and suicidality (Reisner, et al., 2015).

36. Based on longitudinal data, and my own clinical experience, when transgender adolescents are provided with appropriate medical treatment and have parental and social support, they are more likely to thrive and grow into healthy adults (de Vries, et al., 2014).

37. In children and adolescents, a comprehensive biopsychosocial assessment is typically the first step in evaluation, performed by a provider with experience in gender identity. The goals of this assessment are to develop a deep understanding of the young person's experience with gender identity, to consider whether the child or adolescent meets criteria for a diagnosis of gender dysphoria, and to understand what options may be desired and helpful for the adolescent (Coleman, et al., 2022; Coleman, et al., 2012; Hembree, et al., 2017; Hembree, et al., 2009).

38. For children younger than pubertal age, the only recommended treatments do not involve medications. For adolescents, additional treatments involving medications may be appropriate.

39. Options for treatment after the onset of puberty include the use of gonadotropin-releasing hormone agonists ("GnRHa") for purposes of preventing progression of pubertal development, and hormonal interventions such as testosterone and estrogen administration. These treatment options are based on robust research and clinical experience, which consistently demonstrate safety and efficacy.

40. WPATH and the Endocrine Society (Coleman, et al., 2022; Coleman, et al., 2012; Hembree, et al., 2017; Hembree, et al., 2009) and the UCSF Center for Excellence in Transgender Health (Deutsch (ed.), 2016) have all published clinical practice guidelines for the treatment of patients with gender dysphoria. The clinical practice guidelines and standards of care provide a framework for treatment of gender dysphoria in adolescents. The evidence base supporting the

recommendations in these guidelines is comparable to the evidence base supporting other clinical care guidelines.

41. WPATH has been recognized as the standard-setting organization for the treatment of gender dysphoria since its founding in 1979. The most recent WPATH Standards of Care (SOC 8) were published in 2022 (Coleman, et al., 2022).

42. The purpose of the WPATH Standards of Care is to assist health providers in delivering necessary medical care to transgender people, to maximize patients' overall health, psychological well-being, and self-fulfillment. The WPATH Standards of Care serve as one of the foundations for the care provided in my own clinic.

43. The WPATH SOC 8 is based on rigorous review of the best available science and expert professional consensus in transgender health. International professionals were selected to serve on the SOC 8 writing committee. Recommendation statements were developed based on data derived from independent systemic literature reviews. Grading of evidence was performed by an Evidence Review Team which determined the strength of evidence presented in each individual study relied upon in the document (Coleman, et al., 2022).

44. In addition, the Endocrine Society is a 100-year-old global membership organization representing professionals in the field of adult and pediatric endocrinology. In 2017, the Endocrine Society published clinical practice guidelines on treatment recommendations for the medical management of gender dysphoria, in collaboration with Pediatric Endocrine Society, the European Societies for Endocrinology and Pediatric Endocrinology, and WPATH, among others (Hembree, et al, 2017).

45. The Endocrine Society Clinical Guidelines were developed through rigorous scientific processes that "followed the approach recommended by the Grading of

Recommendations, Assessment, Development, and Evaluation group, an international group with expertise in the development and implementation of evidence-based guidelines.” The guidelines affirm that patients with gender dysphoria often must be treated with “a safe and effective hormone regimen that will (1) suppress endogenous sex hormone secretion determined by the person’s genetic/gonadal sex and (2) maintain sex hormone levels within the normal range for the person’s affirmed gender.” (Hembree, et al., 2017).

46. The AAP is the preeminent professional body of pediatricians in the United States, with over 67,000 members. The AAP endorses a commitment to the optimal physical, mental, and social health and well-being for youth. The 2018 policy statement titled *Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents* further lends support to the treatment options outlined in the WPATH Standards of Care and the Endocrine Society’s Clinical Practice Guidelines (Rafferty, et al., 2018).

47. Aside from the AAP, the guidelines set forth by the Endocrine Society Clinical Practice Guideline and the WPATH Standards of Care are supported by the major professional medical and mental health associations in the United States, including the American Medical Association, the American Psychological Association, the American Psychiatric Association, and American Academy of Family Physicians, among others (e.g., AMA, 2019; American Psychological Association, 2015; Drescher, et al., 2018 (American Psychiatric Association); Hembree, et al., 2017 (Endocrine Society); Klein, et al., 2018 (AAFP); National Academies, 2020; WPATH, 2016).

48. As a board-certified pediatric endocrinologist, I follow the Endocrine Society Clinical Practice Guidelines and the WPATH Standards of Care when treating my patients.

D. TREATMENT PROTOCOLS FOR GENDER DYSPHORIA

49. Undergoing treatment to alleviate gender dysphoria is commonly referred to as a transition. The steps that make up a person's transition and their sequence will depend on that individual's medical and mental health needs and decisions made between the patient, family, and medical care team.

50. There are no medications considered for transition until after the onset of puberty. Puberty is a process of maturation heralded by production of sex hormones—testosterone and estrogen—leading to the development of secondary sex characteristics. Secondary sex characteristics include testosterone-induced effects such as deepening of the voice, muscular changes, facial and body hair, and estrogen-induced effects such as breast development. There is diversity in the age of pubertal onset; however, most adolescents begin puberty between ages 10 and 12 years.

51. After the onset of puberty, puberty-delaying medication and hormone-replacement therapy—both individually and in combination—can significantly improve the mental health of adolescents diagnosed with gender dysphoria. These treatments allow for a patient's physiological characteristics to more closely align with gender identity and decreases the likelihood that the young person will be incorrectly identified with their assigned sex, further alleviating their gender dysphoria.

52. At the onset of puberty, adolescents begin to experience the onset of secondary sex characteristics. Adolescents with incongruence between gender identity and assigned sex may have intensification of gender dysphoria during this time due to development of secondary sex characteristics that don't align with gender identity. Persistence or intensification of gender

dysphoria as puberty begins is used as a helpful diagnostic tool as it becomes more predictive of gender identity persistence into adolescence and adulthood (de Vries, et al., 2012).

i. Treatment with puberty-delaying medications

53. Adolescents diagnosed with gender dysphoria who have entered puberty (Tanner Stage 2) may be prescribed puberty-delaying medications (GnRHa) to prevent the distress of developing permanent physical characteristics that do not align with the adolescent's gender identity. Tanner Stage 2 refers to the stage in puberty whereby the physical effects of testosterone or estrogen production are first apparent on physical exam. Specifically, this is heralded by the onset of breast budding in an individual assigned female at birth, or the onset of testicular enlargement in an individual assigned male at birth. For individuals assigned male at birth, Tanner Stage 2 typically occurs between age 9-14, and for those assigned female at birth between age 8-12.

54. The treatment works by pausing endogenous puberty at whatever stage it is at when the treatment begins, limiting the influence of a person's endogenous hormones on their body. For example, a transgender girl will experience no progression of physical changes caused by testosterone, including facial and body hair, an Adam's apple, or masculinized facial structures while undergoing treatment with the pubertal suppressant. And, in a transgender boy, those medications would prevent progression of breast development, menstruation, and widening of the hips for the duration of the treatment (Coleman, et al., 2022; de Vries, et al., 2012; Deutsch (ed.), 2016; Hembree, et al., 2017; Rosenthal, 2014).

55. GnRHa have been used extensively in pediatrics for several decades. Prior to their use for gender dysphoria, they were used (and still are used) to treat precocious puberty. GnRHa work by suppressing the signal hormones from the pituitary gland (luteinizing hormone [LH] and

follicle stimulating hormone [FSH]) that stimulate the testes or ovaries to produce sex hormones. Upon discontinuation of GnRHa, LH and FSH production resume and puberty will also resume.

56. GnRHa have no long-term implications on fertility. In transgender youth, it is most typical to use GnRHa from the onset of puberty (Tanner Stage 2) until mid-adolescence. During the course of treatment, the decision as to whether to continue treatment is continually evaluated. Should pubertal suppression no longer be desired, GnRHa would be discontinued, and puberty would re-commence.

57. Prior to initiation of GnRHa, providers counsel patients and their families extensively on potential benefits and risks. Designed benefit of treatment is to reduce the risk of worsening gender dysphoria and mental health deterioration. More specifically, use of GnRHa in transmasculine adolescents allows for decreased chest development, reducing the need for breast binding and surgical intervention in adulthood. For those transmasculine adolescents who do pursue surgical intervention to reduce breast tissue, such “top surgery” is comparable to the surgical interventions used to treat gynecomastia in non-transgender adolescent males. For transfeminine adolescents GnRHa limits facial and body hair growth, voice deepening, and masculine bone structure development, which greatly reduce distress both at the time of treatment and later in life and reduce the need for later interventions such as voice therapy, hair removal, and facial feminization surgery.

58. The goal in using GnRHa is to minimize the patient’s dysphoria related to progression of puberty and allow for later initiation of puberty consistent with gender identity should that become medically indicated. When a patient presents to care, the provider assesses the patient’s pubertal stage, pubertal history, and individual needs. A patient may present prior to the onset of puberty (Tanner Stage 1), at the onset of puberty (Tanner Stage 2), or further along in

puberty (Tanner Stages 3-5). The pubertal stage and individual needs of the patient then direct conversations regarding care options. A patient at Tanner Stage 2 may benefit from GnRHa, while an older patient who has completed puberty may benefit from pubertal initiation with hormones, as described below. I have observed that providing individualized care based on individual patient characteristics, using the WPATH Standards of Care as the foundation of this care, provides significant benefit to patients, minimizes gender dysphoria, and can eliminate the need for surgical treatments in adulthood.

59. As an experienced pediatric endocrinologist, I treat patients with these same medications for both precocious puberty and gender dysphoria and in both cases the side effects are comparable and easily managed. And for both patient populations the risks are greatly outweighed by the benefits of treatment.

60. In addition, I regularly prescribe GnRHa for patients who do not meet criteria for precocious puberty but who require pubertal suppression. Examples include patients with disabilities who are unable to tolerate puberty at the typical age due to hygienic concerns; minors with growth hormone deficiency who despite growth hormone treatment will have a very short adult height; and patients with endometriosis. As with gender dysphoria, the prescription of GnRHa to treat these conditions is “off-label,” yet it is widely accepted within the field of endocrinology and not considered experimental. The same holds true for other common medications used in pediatric endocrinology: using metformin for weight loss; growth hormone for short stature not caused by growth hormone deficiency; countless medications used to control type 2 diabetes which have an adult indication but whose manufacturers have not applied for a pediatric indication.

ii. Treatment with hormone therapy

61. In mid-adolescence, the patient, their parents, and the patient's care team may discuss the possibility of beginning the use of testosterone or estrogen (along with a testosterone suppressant). In my practice we discuss these treatments for a patient who is currently receiving GnRHa, or patients who have already gone through their endogenous puberty and either did not have access to, desire, or elect for GnRHa treatment.

62. These hormone therapies are used to treat gender dysphoria in adolescents and adults to facilitate development of physical changes congruent with a patient's gender identity. For example, a transgender male adolescent or adult prescribed testosterone will develop a lower voice as well as facial and body hair, while a transgender female adolescent or adult prescribed estrogen will experience breast growth, female fat distribution, and softer skin.

63. Under the Endocrine Society Clinical Guidelines and SOC 8, hormone therapy is an appropriate treatment for transgender adolescents with gender dysphoria when the experience of dysphoria is marked and sustained over time, the adolescent demonstrates emotional and cognitive maturity required to provide and informed consent/assent for treatment, other mental health concerns (if any) that may interfere with diagnostic clarity and capacity to consent have been addressed, the adolescent has discussed reproductive options with their provider. SOC 8 also highlights the importance of involving parent(s)/guardian(s) in the assessment and treatment process for minors (Coleman, et al., 2022; Hembree, et al., 2017). In the United States, parental consent is required for treatment for adolescents with gender dysphoria.

64. Similar to GnRHa, the risks and benefits of hormone treatment are discussed with patients (and families, if the patient is a minor) prior to initiation of testosterone or estrogen. When treated with testosterone or estrogen, the goal is to maintain the patient's hormone levels within

the normal range for their gender identity. Laboratory testing is recommended to ensure proper dosing and hormonal levels. If starting hormonal care after completing puberty, discussion of egg or sperm preservation prior to starting treatment is recommended.

65. Regardless of the treatment plan prescribed, at every encounter with the care team there is a re-evaluation of treatment – including the benefits, side effects, and trajectory of the treatment for the individual patient. Should a patient desire to discontinue a medical intervention, the intervention is discontinued.

**E. SAFETY AND EFFICACY OF PUBERTY-DELAYING
MEDICATIONS AND HORMONE THERAPY TO TREAT GENDER
DYSPHORIA**

66. GnRHa, prescribed for delaying puberty in transgender adolescents with gender dysphoria, is both a safe and effective treatment. Patients under consideration for treatment work with providers to ensure that each treatment decision is informed and appropriate. This process is done thoughtfully and carefully with the patient and family in the best interest of the adolescent. Physicians providing this intervention are trained and qualified in gender identity concerns and childhood growth and development and are participating in this care out of a desire to improve the health and wellness of transgender youth and prevent negative outcomes such as depression and suicide.

67. GnRHa, including injectable leuprolide and implantable histrelin, have rare side effects which are discussed with patients and families prior to initiation. Mild negative effects may include pain at the injection or implantation site, sterile abscess formation, weight gain, hot flashes, abdominal pain, and headaches. These effects can be seen in patients receiving GnRHa for gender dysphoria, or for other indications such as precocious puberty. It is appropriate to counsel patients

on maintaining a healthy diet and promote physical activity, and regularly document height and weight during treatment. Nutritional support can be provided for patients at risk for obesity.

68. Risk of lower bone mineral density in prolonged use of GnRHa can be mitigated by screening for, and treating, vitamin D deficiency when present, and by limiting the number of years of treatment based on a patient's clinical course (Rosenthal, 2014). An exceptionally rare occurrence described with the use of GnRHa is increased intracranial pressure, which has been reported in six patients (five treated for precocious puberty, one for gender dysphoria), prompting an FDA warning in July 2022 (AAP, 2022). These cases represent an extremely small fraction of the hundreds of thousands of patients who have been treated with GnRHa over decades for conditions including precocious puberty as well as gender dysphoria. Symptoms of this side effect (headache, vomiting, visual changes) are reviewed with families and if they occur the medication is discontinued.

69. GnRHa on its own does not have long-term implications on fertility. This is clearly proven from decades of use in the treatment of precocious puberty (Guaraldi, et al., 2016; Martinerie, et al, 2021). Progression through natal puberty is required for maturation of egg or sperm. If fertility after previous treatment with GnRHa followed by hormone therapy is desired, an adult patient would withdraw from hormones and allow pubertal progression. Assistive reproduction could be employed if needed (T'Sjoen, et al., 2013). Caanen et al demonstrated that transgender men have similar ovarian morphology to cisgender women, even when treated with GnRHa followed by testosterone. These treatments did not cause the ovarian changes which are seen in hyperandrogenic women with polycystic ovarian syndrome and infertility (Caanen, 2017). This lends support to the expectation that the sequence of GnRHa to testosterone does not cause permanent infertility.

70. Patients who initiate hormones after completing puberty are offered gamete preservation prior to hormonal initiation (Coleman, et al., 2022), but even when not undertaken, withdrawal of hormones in adulthood often is successful in achieving fertility when it is desired (Light, et al., 2014; Knudson, et al., 2017). For transgender men, pregnancy has occurred even when on testosterone treatment and trans male patients are regularly advised that testosterone is not an effective form of birth control.

71. Discussing the topic of fertility is important, and not specifically unique to treatment of gender dysphoria in the pediatric patient population. Medications used for other medical conditions, such as chemotherapeutics used in cancer treatment, can affect fertility. For all medications with potential impacts on fertility, the potential risks and benefits of both treatment and non-treatment should be reviewed and data regarding risk for infertility clearly articulated prior to the consent or assent of the patient. Risk for fertility changes must be balanced with the risk of withholding treatment.

72. Review of relevant medical literature clearly supports the benefits of GnRHa treatment on both short-term and long-term psychological functioning and quality of life (e.g., Achille, et al., 2020; Carmichael, et al., 2021; Costa, et al., 2015; de Vries, et al., 2014; de Vries, et al., 2011; Kuper, et al., 2020; Turban, et al., 2020b; van der Miesen, et al., 2020).

73. In my own practice, adolescent patients struggling with significant distress at the onset of puberty routinely have dramatic improvements in mood, school performance, and quality of life with appropriate use of GnRHa. Side effects encountered are similar to those seen in other patients treated with these medications for conditions other than gender dysphoria and easily managed.

74. Hormone therapy (testosterone or estrogen) is prescribed to older adolescents with gender dysphoria. As is the case with GnRHa, the need for hormone therapy is not unique to transgender adolescents. Patients with conditions such as delayed puberty, hypogonadism, Turner Syndrome, Klinefelter Syndrome, gonadotropin deficiency, premature ovarian failure, and disorders of sex development all require treatment with these hormones, often times starting in adolescence and continuing lifelong. Without testosterone or estrogen treatment, these patients would be unable to progress through puberty normally, which would have serious medical and social consequences. Whether used in adolescents to treat gender dysphoria, or to treat any of these other conditions, testosterone and estrogen are prescribed with a goal to raise the testosterone or estrogen level into the normal male or female range for the patient's age. Careful monitoring of blood levels and clinical progress are required. Side effects are rare, but most often related to overtreatment, which can be minimized with this appropriate monitoring. Additionally, side effects are considered, discussed, and appropriately managed in all individuals needing hormone therapy regardless of the diagnosis necessitating these medications.

75. Venous thromboembolism (blood clotting) is a known side effect of estrogen therapy in all individuals placed on it including transgender women. Risk is increased with age, in patients with cancer, and in patients who smoke nicotine. This side effect is mitigated by careful and accurate prescribing and monitoring. In my career, none of my patients have suffered a thromboembolism while on estrogen therapy.

76. Treatment of gender dysphoria with testosterone or estrogen is highly beneficial for both short-term and long-term psychological functioning of adolescents with gender dysphoria and withholding treatment from those who need it is harmful (e.g., Achille, et al., 2020; Allen, et al.,

2019; Chen, et al., 2023; de Lara, et al., 2020; de Vries, et al., 2014; Grannis, et al., 2021; Green, et al., 2022; Kaltiala, et al., 2020; Kuper, et al., 2020).

77. I treat many patients with gender dysphoria with GnRHa, testosterone, and estrogen. Side effects related to these medications are very rare and can be treated with dose adjustment and/or lifestyle changes. In all cases, treatment is tailored to the individual needs of the patient, weighing the potential risks and benefits of treatment and withholding treatment, the medical history of the individual patient, as well as the best available research and clinical data for each medical intervention.

78. The research on the efficacy of hormone treatment in transgender adults is robust and can also be used to bolster our knowledge about the efficacy of treatment in adolescents. At least 11 longitudinal studies document improvement in various mental health parameters including depression, anxiety, self-confidence, body image and self-image, general psychological functioning (e.g., Colizzi, et al., 2013; Colizzi, et al., 2014; Corda, et al., 2016; Defreyne, et al., 2018; Fisher, et al., 2016; Heylens, et al., 2014; Keo-Meier, et al., 2015; Manieri, et al., 2014; Motta, et al., 2018; Oda, et al., 2017; Turban, et al., 2018).

79. In sum, the use of GnRHa and hormones in adolescents for the treatment of gender dysphoria is the current standard of care. This is of the product of the best available evidence that clearly demonstrates the safety and efficacy of this treatment for those who need it.

F. HARMS ASSOCIATED WITH PROHIBITING AND DISCONTINUING TREATMENT

80. Prohibition of gender-affirming care for adolescents is likely to have devastating consequences. I am concerned that S.E.A. 480 might lead to a staggering increase in mental health problems including suicidality for adolescents with gender dysphoria in Indiana.

81. Even more concerning is a situation where patients currently receiving care and thriving would be forced to discontinue this care. Discontinuation of GnRHa would cause the onset of a puberty discordant from gender identity, a significant source of distress for patients with gender dysphoria. Similarly, discontinuation of gender-affirming hormone therapy for adolescents with gender dysphoria will cause adolescents receiving treatment to experience physiological changes inconsistent with their gender identity. Abrupt withdrawal of hormone therapy can cause severe physical side effects including hot flashes and headaches. For patients who are titrated down in dose to avoid these effects, taking patients off of a therapeutic dose of hormone therapy would cause the types of physiological changes inconsistent with gender identity that result in severe psychological distress for adolescents with gender dysphoria. For adolescents in Indiana whose current treatment is affected by S.E.A. 480, I am concerned that the law will cause severe and rapidly deteriorating emotional problems.

III. CONCLUSION

82. In summary, banning gender-affirming care regardless of individual patient need runs counter to evidence-based best practices and standards of care for the treatment of gender dysphoria.

83. Lack of access to the treatments banned under the Act will result in worse outcomes for countless individuals in Indiana.

84. In my own clinical practice in Michigan, I have seen an influx of patients from states banning medically proven treatments for gender dysphoria who report not feeling safe living in the community that they have always called home. These patients unfortunately often have to wait long periods of time to resume care and when they are seen, the impact of this delay is devastating on their mental health.

85. Banning effective treatment for gender dysphoria will not eliminate transgender people, but will, unfortunately, lead to an increase in mental health problems and suicidality in an already vulnerable population.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 18th day of April 2023.

A handwritten signature in black ink, appearing to read 'DShumer', is positioned above a horizontal line.

Daniel Shumer, M.D.

Daniel Shumer
Clinical Associate Professor
dshumer@umich.edu

Education and Training

Education

08/2000-08/2003	BA, Northwestern University, Evanston, IL
08/2004-05/2008	MD, Northwestern University, Feinberg School of Medicine, Chicago, IL
07/2013-05/2015	MPH, Harvard T.H. Chan School of Public Health, Boston, MA

Postdoctoral Training

06/2008-06/2011	Residency, Pediatrics, Vermont Children's Hospital at Fletcher Allen Health Care, Burlington, VT
07/2011-06/2012	Chief Resident, Chief Resident, Vermont Children's Hospital at Fletcher Allen Health Care, Burlington, VT
07/2012-06/2015	Clinical Fellow, Pediatric Endocrinology, Boston Children's Hospital, Boston, MA

Certification And Licensure

Certification

10/2011-Present	American Board of Pediatrics, General
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Licensure

	Michigan, Medical License
	Michigan, Controlled Substance
08/2015-Present	Michigan, Medical License
09/2015-Present	Michigan, DEA Registration
09/2015-Present	Michigan, Controlled Substance

Work Experience

Academic Appointment

10/2015-Present	Clinical Assistant Professor in Pediatrics - Endocrinology, University of Michigan - Ann Arbor, Ann Arbor
04/2022-Present	in Pediatrics - Endocrinology, University of Michigan - Ann Arbor, Ann Arbor
09/2022-08/2023	Clinical Associate Professor in Pediatrics - Endocrinology, University of Michigan - Ann Arbor, Ann Arbor

Administrative Appointment

07/2019-Present	Fellowship Director - Pediatric Endocrinology, Michigan Medicine, Department of Pediatrics, Ann Arbor
07/2020-Present	Medical Director of the University of Michigan Comprehensive Gender Services Program, Oversee the provision of care to transgender and gender non-conforming patients at Michigan Medicine, Michigan Medicine, Ann Arbor
07/2020-Present	Education Lead - Pediatric Endocrinology, University of Michigan - Department of Pediatrics, Ann Arbor

Clinical Appointments

04/2022-05/2023 Medical Director in UMMG Faculty Benefits Appt., University of Michigan - Ann Arbor, Ann Arbor

Private Practice

08/2013-09/2015 Staff Physician, Harvard Vanguard Medical Associates, Braintree

Grants

FY23-Project AW (NEWBRSC-UM): Newborn Screening Coordinating Center:
Co-I (Principal Investigator:Ram Menon)
MDHHS
10/2022 - 09/2023
\$659,065

Newborn Screening Coordinating Center:
Co-I (Principal Investigator:Ram Menon)
MDHHS
10/2023 - 09/2024
\$795,278

U2CDK:Catalyzing Health Equity and Engagement in T1D Research:
Co-I (Principal Investigator:Joyce Lee)
NIH-DHHS-US
07/2023 - 06/2028
\$11,794,578

R01:The Intersection of Sex and Gender in Pediatric Meta-Inflammation:
Co-I (Principal Investigator:Kanakadurga Singer)
NIH-DHHS-US
07/2020 - 06/2024
\$2,087,316

Past Grants

A Phase 2b/3 study to evaluate the safety, tolerability, and effects of Livoletide (AZP-531), an unacylated ghrelin analog, on food-related behaviors in patients with Prader-Willi syndrome:
PI
Millendo Therapeutics
04/2019 - 04/2021
\$162,773

Honors and Awards

National

2014 Annual Pediatric Endocrine Society Essay Competition: Ethical Dilemmas in Pediatric Endocrinology: competition winner - The Role of Assent in the Treatment of Transgender Adolescents

Institutional

2012 - 2015 Harvard Pediatric Health Services Research Fellowship; funded my final two years of pediatric endocrine fellowship and provided tuition support for my public health

degree

- 2016 The University of Michigan Distinguished Diversity Leaders Award, awarded by The Office of Diversity, Equity and Inclusion to the Child and Adolescent Gender Services Team under my leadership
- 2019 Lecturer of the Month, Department of Pediatrics, Michigan Medicine

Teaching

Mentorship

Resident

- 07/2020-Present Rebecca Warwick, Michigan Medicine (co-author on publication #22)

Clinical Fellow

- 07/2017-06/2020 Adrian Araya, Michigan Medicine (co-author on publication #22, book chapter #4)
- 12/2020-Present Jessica Jary, Michigan Medicine - Division of Adolescent Medicine

Medical Student

- 09/2017-06/2020 Michael Ho, Michigan Medicine
- 07/2019-Present Hadrian Kinnear, University of Michigan Medical School (co-author on book chapter #3, abstract #3)
- 07/2019-Present Jourdin Batchelor, University of Michigan

Teaching Activity

Regional

- 08/2018-Present Pediatric Boards Review Course sponsored by U-M: "Thyroid Disorders and Diabetes". Ann Arbor, MI

Institutional

- 12/2015-12/2015 Pediatric Grand Rounds: "Transgender Medicine - A Field in Transition". Michigan Medicine, Ann Arbor, MI
- 02/2016-02/2016 Medical Student Education: Panelist for M1 Class Session on LGBT Health, Doctoring Curriculum. Michigan Medicine, Ann Arbor, MI
- 02/2016-02/2016 Psychiatry Grand Rounds: "Transgender Medicine - A Field in Transition". Michigan Medicine, Ann Arbor, MI
- 03/2016-03/2017 Pharmacy School Education: "LGBT Health". University of Michigan School of Pharmacy, Ann Arbor, MI
- 04/2016-Present Course Director: Medical Student (M4) Elective in Transgender Medicine. Michigan Medicine, Ann Arbor, MI
- 04/2016-04/2016 Rheumatology Grand Rounds: "Gender Identity". Michigan Medicine, Ann Arbor, MI
- 05/2016-05/2016 Lecture to Pediatric Rheumatology Division: "Gender Dysphoria". Michigan Medicine, Ann Arbor, MI
- 07/2016-07/2016 Internal Medicine Resident Education: "Gender Identity". Michigan Medicine, Ann Arbor, MI
- 09/2016-09/2016 Presentation to ACU Leadership: "Gender Identity Cultural Competencies". Michigan Medicine, Ann Arbor, MI
- 10/2016-10/2016 Presentation to Department of Dermatology: "The iPledge Program and Transgender Patients". Michigan Medicine, Ann Arbor, MI
- 02/2017-02/2017 Swartz Rounds Presenter. Michigan Medicine, Ann Arbor, MI
- 02/2017-02/2017 Lecture to Division of General Medicine: "Transgender Health". Michigan Medicine, Ann Arbor, MI

02/2017-02/2017	Presentation at Collaborative Office Rounds: "Transgender Health". Michigan Medicine, Ann Arbor, MI
10/2017-10/2017	Family Medicine Annual Conference: "Transgender Medicine". Michigan Medicine, Ann Arbor, MI
12/2017-12/2017	Presenter at Nursing Unit 12-West Annual Educational Retreat: "Gender Identity at the Children's Hospital". Michigan Medicine, Ann Arbor, MI
02/2018-Present	Pediatrics Residency Lecturer: "Puberty". Michigan Medicine, Ann Arbor, MI
02/2019-Present	Medical Student (M1) Lecturer: "Pediatric Growth and Development". Michigan Medicine, Ann Arbor, MI
02/2019-Present	Doctors of Tomorrow Preceptor: offering shadowing opportunities to students from Cass Technical High School in Detroit. Michigan Medicine, Ann Arbor, MI
03/2019-03/2019	Lecture to Division of Orthopedic Surgery: "Transgender Health". Michigan Medicine, Ann Arbor, MI
04/2023-Present	Guest Lecturer in Woman and Gender Studies 400 undergraduate course, University of Michigan

Memberships in Professional Societies

2012 - Present Pediatric Endocrine Society

Committee/Service

National

2014 - 2016 Pediatric Endocrine Society - Ethics Committee, Other, Member
 2017 - present Pediatric Endocrine Society - Special Interest Group on Gender Identity, Other, Member
 2018 - present Pediatric Endocrine Society - Program Directors Education Committee, Other, Member

Regional

2013 - 2015 Investigational Review Board - The Fenway Institute, Boston, MA, Other, Voting Member

Institutional

2017 - 2019 Department of Pediatrics at Michigan Medicine; Diversity, Equity, and Inclusion Committee, Other, Fellowship Lead
 2017 - 2019 University of Michigan Transgender Research Group, Other, Director

Volunteer Service

Volunteer

2014 Camp Physician, Massachusetts, Served at a camp for youth with Type 1 Diabetes

Scholarly Activities

Presentations

Extramural Invited Presentation

Speaker

1. Grand Rounds, **Shumer D**, Loyola University School of Medicine, 07/2022, Chicago, Illinois

Other

1. Gender Identity, Groton School, 04/2015, Groton, MA
 2. Television Appearance: Gender Identity in Youth, Channel 7 WXYZ Detroit, 04/2016, Southfield, MI

3. It Gets Better: Promoting Safe and Supportive Healthcare Environments for Sexual Minority and Gender Non-Conforming Youth, Adolescent Health Initiative: Conference on Adolescent Health, 05/2016, Ypsilanti, MI
4. Gender Identity, Humanists of Southeast Michigan, 09/2016, Farmington Hills, MI
5. Gender Identity, Pine Rest Christian Mental Health Services, 10/2016, Grand Rapids, MI
6. Pediatric Grand Rounds - Hormonal Management of Transgender Youth, Beaumont Children's Hospital, 11/2016, Royal Oak, MI
7. Transgender Youth: A Field in Transition, Temple Beth Emeth, 11/2016, Ann Arbor, MI
8. Transgender Youth: A Field in Transition, Washtenaw County Medical Society, 11/2016, Ann Arbor, MI
9. Pediatric Grand Rounds: Transgender Youth - A Field in Transition, St. John Hospital, 02/2017, Detroit, MI
10. Transgender Medicine, Veterans Administration - Ann Arbor Healthcare System, 05/2017, Ann Arbor, MI
11. Gender Identity, Hegira Programs, 05/2017, Detroit, MI
12. Care of the Transgender Adolescent, Partners in Pediatric Care, 06/2017, Traverse City, MI
13. Conference planner, host, and presenter: Transgender and Gender Non-Conforming Youth: Best Practices for Mental Health Clinicians, Educators, & School Staff; 200+ attendees from fields of mental health and education from across Michigan, Michigan Medicine, 10/2017, Ypsilanti, MI
14. Endocrinology Grand Rounds: Transgender Medicine, Wayne State University, 11/2017, Detroit, MI
15. Care of the Transgender Adolescent, St. John Hospital Conference: Transgender Patients: Providing Compassionate, Affirmative and Evidence Based Care, 11/2017, Grosse Pointe Farms, MI
16. Hormonal Care in Transgender Adolescents, Michigan State University School of Osteopathic Medicine, 11/2017, East Lansing, MI
17. Working with Transgender and Gender Non-Conforming Youth, Michigan Association of Osteopathic Family Physicians, 01/2018, Bellaire, MI
18. Community Conversations, Lake Orion, 01/2018, Lake Orion, MI
19. "I Am Jazz" Reading and Discussion, St. James Episcopal Church, 03/2019, Dexter, MI
20. Gender Identity, Michigan Organization on Adolescent Sexual Health, 10/2019, Brighton, MI; Port Huron, MI
21. Ask The Expert, Stand With Trans, 05/2020, Farmington Hills, MI (Virtual due to COVID)
22. Lets Talk About Hormones, Stand With Trans, 10/2020, Farmington Hills, MI (Virtual due to COVID)
23. Transgender Medicine, Michigan Association of Clinical Endocrinologists Annual Symposium, 10/2020, Grand Rapids, MI (Virtual due to COVID)
24. Transgender Youth in Primary Care, Michigan Child Care Collaborative (MC3), 10/2020, Ann Arbor, MI (Virtual due to COVID)
25. Gender Identity, Universalist Unitarian Church of East Liberty, 04/2021, Virtual due to COVID
26. Unconscious Bias, Ascension St. John Hospital, 05/2021, Virtual due to COVID

Publications/Scholarship

(Co-First Author *; Corresponding author **; Co-Last author ***)

Peer-Reviewed

Journal Article

1. **Shumer DE**, Mehringer JE, Braverman LE, Dauber A: Acquired hypothyroidism in an infant related to excessive maternal iodine intake: food for thought. *Endocr Pract.*19(4): 729-731, 01/2013. PM23512394
2. **Shumer DE**, Spack NP: Current management of gender identity disorder in childhood and adolescence: guidelines, barriers and areas of controversy. *Curr Opin Endocrinol Diabetes Obes.*20(1): 69-

73, 02/2013. PM23221495

3. **Shumer DE**, Thaker V, Taylor GA, Wassner AJ: Severe hypercalcaemia due to subcutaneous fat necrosis: presentation, management and complications. *Arch Dis Child Fetal Neonatal Ed.*99(5): F419-F421, 09/2014. PM24907163
4. Tishelman AC, Kaufman R, Edwards-Leeper L, Mandel FH, **Shumer DE**, Spack NP: Serving Transgender Youth: Challenges, Dilemmas and Clinical Examples. *Prof Psychol Res Pr.*46(1): 37-45, 01/2015. PM26807001
5. **Shumer DE**, Tishelman AC: The Role of Assent in the Treatment of Transgender Adolescents. *Int J Transgend.*16(2): 97-102, 01/2015. PM27175107
6. **Shumer DE**, Roberts AL, Reisner SL, Lyall K, Austin SB: Brief Report: Autistic Traits in Mothers and Children Associated with Child's Gender Nonconformity. *J Autism Dev Disord.*45(5): 1489-1494, 05/2015. PM25358249
7. Tishelman AC, Kaufman R, Edwards-Leeper L, Mandel FH, **Shumer DE**, Spack NP: Reply to comment on "Serving Transgender Youth: Challenges, Dilemmas, and Clinical Examples" by Tishelman et al. (2015). *Prof Psychol Res Pr.*46(4): 307, 08/2015. PM26858509
8. Guss C, **Shumer D**, Katz-Wise SL: Transgender and gender nonconforming adolescent care: psychosocial and medical considerations. *Curr Opin Pediatr.*27(4): 421-426, 08/2015. PM26087416
9. **Shumer DE**, Nokoff NJ, Spack NP: Advances in the Care of Transgender Children and Adolescents. *Adv Pediatr.*63(1): 79-102, 08/2016. PM27426896
10. **Shumer DE**, Reisner SL, Edwards-Leeper L, Tishelman A: Evaluation of Asperger Syndrome in Youth Presenting to a Gender Dysphoria Clinic. *LGBT Health.*3(5): 387-390, 10/2016. PM26651183
11. **Shumer DE**, Abriha A, Feldman HA, Carswell J: Overrepresentation of Adopted Adolescents at a Hospital-Based Gender Dysphoria Clinic. *Transgend Health.*2(1): 76-79, 01/2017. PM28861549
12. Edwards-Leeper L, **Shumer DE**, Feldman HA, Lash BR, Tishelman AC: Psychological profile of the first sample of transgender youth presenting for medical intervention in a U.S. pediatric gender center. *Psychology of Sexual Orientation and Gender Diversity.*4(3): 374-382, 01/2017
13. Tishelman AC, **Shumer DE**, Nahata L: Disorders of Sex Development: Pediatric Psychology and the Genital Exam. *J Pediatr Psychol.*42(5): 530-543, 06/2017. PM27098964
14. Strang JF, Meagher H, Kenworthy L, de Vries AL C, Menvielle E, Leibowitz S, Janssen A, Cohen-Kettenis P, **Shumer DE**, Edwards-Leeper L, Pleak RR, Spack N, Karasic DH, Schreier H, Balleur A, Tishelman A, Ehrensaft D, Rodnan L, Kuschner ES, Mandel F, Caretto A, Lewis HC, Anthony LG: Initial Clinical Guidelines for Co-Occurring Autism Spectrum Disorder and Gender Dysphoria or Incongruence in Adolescents. *J Clin Child Adolesc Psychol.*47(1): 105-115, 01/2018. PM27775428
15. Mohnach L, Mazzola S, **Shumer D**, Berman DR: Prenatal diagnosis of 17-hydroxylase/17,20-lyase deficiency (17OHD) in a case of 46,XY sex discordance and low maternal serum estriol. *Case Reports in Perinatal Medicine.*8(1)01/2018
16. Kim C, Harrall KK, Glueck DH, **Shumer D**, Dabelea D: Childhood adiposity and adolescent sex steroids in the EPOCH (Exploring Perinatal Outcomes among Children) study. *Clin Endocrinol (Oxf).*91(4): 525-533, 01/2019. PM31278867
17. Selkie E, Adkins V, Masters E, Bajpai A, **Shumer D**: Transgender Adolescents' Uses of Social Media for Social Support. *J Adolesc Health.*66(3): 275-280, 03/2020. PM31690534
18. Araya AC, Warwick R, **Shumer D**, Selkie E: Romantic Relationships in Transgender Adolescents: A Qualitative Study. *Pediatrics.*147(2)02/2021. PM33468600
19. Vengalil N, **Shumer D**, Wang F: Developing an LGBT curriculum and evaluating its impact on dermatology residents. *Int J Dermatol.*61: 99-102, 01/2022. PM34416015
20. Warwick RM, Araya AC, **Shumer DE**, Selkie EM: Transgender Youths' Sexual Health and Education: A Qualitative Analysis. *J Pediatr Adolesc Gynecol.*35(2): 138-146, 04/2022. PM34619356
21. Warwick RM, **Shumer DE**: Gender-affirming multidisciplinary care for transgender and non-binary children and adolescents. *Children's Health Care.*52(1): 91-115, 01/2023

Books

1. Clara A-V, Bizic M, Bockting WO, Bouman M-B, Bowers ML, Buncamper ME, Capitán L, Castillo M, Chim HW, Colebunders B, Crane C, D'Arpa S, Djordjevic ML, Estes C, Fein LA, Gasgarth R, Hoebeke P, Horne M, Joumblat NR, Kojic S, Levine JP, Lumen N, Meijerink WJ H J, Monstrey SJ, Salgado CJ, **Shumer DE**, Simon D, Sinha VR, Sinha VK, Spack NP, Sputova K, Stanojevic D, Stojanovic B, Tarsha AA, Thomas JP, van der Sluis WB, Volker MK, Weiss RE, Yamaguchi Y, Zhao LC, Zoghbi Y. *Gender Affirmation Medical & Surgical Perspectives*. Thieme, (2017)

Chapters

1. **Shumer D**: Coma. In Schwartz MW *The 5-Minute Pediatric Consult*,6, Lippincott Williams & Wilkins, Philadelphia, PA, (2012)
2. **Shumer D**, Spack N: Medical Treatment of the Adolescent Transgender Patient. In Đorđević M, Monstrey SJ, Salgado CJ Eds. *Gender Affirmation: Medical and Surgical Perspectives*,CRC Press/Taylor & Francis, (2016)
3. **Shumer DE**, Kinnear HA: Duration of Pubertal Suppression and Initiation of Gender-Affirming Hormone Treatment in Youth. In Finlayson *Pubertal Suppression in Transgender Youth*,Elsevier, (2018)
4. **Shumer DE**, Araya A: Endocrinology of Transgender Care – Children and Adolescents. In Poretsky, Hembree Ed. *Transgender Medicine: A Multidisciplinary Approach*,Springer, (2019)

Non-Peer Reviewed

Commentary

1. Martin S, Sandberg ES, **Shumer DE**: Criminalization of Gender-Affirming Care - Interfering with Essential Treatment for Transgender Children and Adolescents. *New England Journal of Medicine*.385(7): 579-581, 05/2021. PM34010528

Comparative Study

1. Reisner SL, Vettters R, Leclerc M, Zaslow S, Wolfrum S, **Shumer D**, Mimiaga MJ: Mental health of transgender youth in care at an adolescent urban community health center: a matched retrospective cohort study. *J Adolesc Health*.56(3): 274-279, 03/2015. PM25577670

Editorial Comment

1. **Shumer DE**, Harris LH, Opiari VP: The Effect of Lesbian, Gay, Bisexual, and Transgender-Related Legislation on Children. 11/2016. PM27575000
2. **Shumer DE**: Health Disparities Facing Transgender and Gender Nonconforming Youth Are Not Inevitable, 01/2018. PM29437859
3. Martin S, Sandberg ES, **Shumer DE**: Criminalization of Gender-Affirming Care - Interfering with Essential Treatment for Transgender Children and Adolescents, 01/2021

Erratum

1. Tishelman AC, Kaufman R, Edwards-Leeper L, Mandel FH, **Shumer DE**, Spack NP: Correction to Serving Transgender Youth: Challenges, Dilemmas, and Clinical Examples, [Professional Psychology: Research and Practice, 46(1), (2015) 37-45]. *Professional Psychology: Research and Practice*.46(4): 249, 08/2015

Letter

1. Strang JF, Janssen A, Tishelman A, Leibowitz SF, Kenworthy L, McGuire JK, Edwards-Leeper L, Mazefsky CA, Rofey D, Bascom J, Caplan R, Gomez-Lobo V, Berg D, Zaks Z, Wallace GL, Wimm H, Pine-Twaddell E, **Shumer D**, Register-Brown K, Sadikova E, Anthony LG: Revisiting the Link: Evidence of the Rates of Autism in Studies of Gender Diverse Individuals. *J Am Acad Child Adolesc Psychiatry*.57(11): 885-887, 11/2018. PM30392631

Letter to editor

1. **Shumer D**: Doctor as environmental steward, 01/2009. PM19364173

News

1. **Shumer DE**, Spack NP: Paediatrics: Transgender medicine--long-term outcomes from 'the Dutch model'. *Nat Rev Urol*.12(1): 12-13, 01/2015. PM25403246

Other

1. **Shumer D**: The Effect of Race and Gender Labels in the Induction of Traits. *Northwestern Journal of Race and Gender Criticism*.NA01/2014
2. **Shumer D**: A Tribute to Medical Stereotypes. *The Pharos, Journal of the Alpha Omega Alpha Medical Society*.Summer07/2017
3. Mohnach L, Mazzola S, **Shumer D**, Berman DR: Prenatal Diagnosis of 17-hydroxylase/17,20-lyase deficiency (17OHD) in a case of 46,XY sex discordance and low maternal serum estriol. *Case Reports in Perinatal Medicine*.8(1)12/2018
4. Araya A, **Shumer D**, Warwick R, Selkie E: 37. "I've Been Happily Dating For 5 Years" - Romantic and Sexual Health, Experience and Expectations in Transgender Youth. *Journal of Adolescent Health*.66(2): s20, 02/2020
5. Araya A, **Shumer D**, Warwick R, Selkie E: 73. "I think sex is different for everybody" - Sexual Experiences and Expectations in Transgender Youth. *Journal of Pediatric and Adolescent Gynecology*.33(2): 209-210, 04/2020
6. Araya AC, Warwick R, **Shumer D**, Selkie E, Rath T, Ibrahim M, Srinivasan A: Romantic Health in Transgender Adolescents. *Pediatrics*.Pediatrics01/2021

Podcast

1. Gaggino L, Shumer WG D: Pediatric Meltdown: Caring for Transgender Youth with Compassion: What Pediatricians Must Know, 01/2020

Abstract/Posters

1. **Shumer D**: Overrepresentation of Adopted Children in a Hospital Based Gender Program, World Professional Association of Transgender Health Biennial International Symposium, Amsterdam, The Netherlands, 2016
2. **Shumer D**: Mental Health Presentation of Transgender Youth Seeking Medical Intervention, World Professional Association of Transgender Health Biennial International Symposium, Amsterdam, The Netherlands, 2016
3. **Shumer D**, Kinnear H, McLain K, Morgan H: Development of a Transgender Medicine Elective for 4th Year Medical Students, National Transgender Health Summit, Oakland, CA, 2017
4. Adkins V, Masters E, **Shumer D**, Selkie E: Exploring Transgender Adolescents' Use of Social Media for Support and Health Information Seeking (Poster Presentation), Pediatric Research Symposium, Ann Arbor, MI, 2017
5. Sandberg E, Baines HK, Aye T, Hart-Unger S, Lopez X, Nikita ME, Nokoff NJ, Persky R, **Shumer D**, Harris RM, Roberts SA: National Assessment for the Need of a Comprehensive Pediatric Gender Affirming Care Curriculum, Poster, Pediatric Endocrine Society Meeting, Virtual, 2021

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Achille, C., Taggart, T., Eaton, N. R., Osipoff, J., Tafuri, K., Lane, A., & Wilson, T. A. (2020). Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: preliminary results. *International journal of pediatric endocrinology*, 2020, 8.

Allen, N. G., Krishna, K. B., & Lee, P. A. (2021). Use of gonadotropin-releasing hormone analogs in children. *Current opinion in pediatrics*, 33(4), 442–448.

Allen, L.R., Watson, L.B., Egan, A.M., & Moser, C.N. (2019). Well-Being and Suicidality Among Transgender Youth After Gender-Affirming Hormones. *Clinical Practice in Pediatric Psychology*, 7(3), 302-311.

American Medical Association and GLMA (2019). Health Insurance Coverage for Gender-Affirming Care of Transgender Patients. <https://www.ama-assn.org/system/files/2019-03/transgender-coverage-issue-brief.pdf>

American Psychological Association. (2015). Guidelines for psychological practice with transgender and gender nonconforming people. *American Psychologist*, 70, 832-864.

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.). Arlington, VA: American Psychiatric Publishing.

Ashley, F. (2022). The clinical irrelevance of “desistance” research for transgender and gender creative youth. *Psychology of Sexual Orientation and Gender Diversity*, 9(4), 387–397.

Berglund, H., Lindström, P., Dhejne-Helmy, C., & Savic, I. (2008). Male-to-female transsexuals show sex-atypical hypothalamus activation when smelling odorous steroids. *Cerebral cortex (New York, N.Y. : 1991)*, 18(8), 1900–1908.

Campbell, Travis and Rodgers, Yana van der Meulen, Conversion Therapy, Suicidality, and Running Away: An Analysis of Transgender Youth in the U.S. (November 15, 2022). Available at SSRN: <http://dx.doi.org/10.2139/ssrn.4180724>

Caanen MR, et al. (2017). Effects of long-term exogenous testosterone administration on ovarian morphology, determined by transvaginal (3D) ultrasound in female-to-male transsexuals. *Hum Reprod.* 32(7):1457-1464.

Carmichael, P., Butler, G., Masic, U., Cole, T. J., De Stavola, B. L., Davidson, S., Skageberg, E. M., Khadr, S., & Viner, R. M. (2021). Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. *PloS one*, 16(2), e0243894.

Chen D, Berona J, Chan YM, Ehrensaft D, Garofalo R, Hidalgo MA, Rosenthal SM, Tishelman AC, Olson-Kennedy J. (2023). Psychosocial Functioning in Transgender Youth after 2 Years of Hormones. *New England Journal of Med.* 2023 Jan 19;388(3):240-250.

Chung, W. C., De Vries, G. J., & Swaab, D. F. (2002). Sexual differentiation of the bed nucleus of the stria terminalis in humans may extend into adulthood. *The Journal of neuroscience: the official journal of the Society for Neuroscience*, 22(3), 1027–1033.

Cohen-Kettenis, P. T., & van Goozen, S. H. (1997). Sex reassignment of adolescent transsexuals: a follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(2), 263–271.

Coleman, E., Radix, A. E., Bouman, W. P., Brown, G. R., de Vries, A. L. C., Deutsch, M. B., Ettner, R., Fraser, L., Goodman, M., Green, J., Hancock, A. B., Johnson, T. W., Karasic, D. H., Knudson, G. A., Leibowitz, S. F., Meyer-Bahlburg, H. F. L., Monstrey, S. J., Motmans, J., Nahata, L., Nieder, T. O., ... Arcelus, J. (2022). Standards of Care for the Health of Transgender and Gender Diverse People, Version 8. *International journal of transgender health*, 23(Suppl 1), S1–S259.

Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCuypere, G., Feldman, J., ... & Zucker, K. (2012). Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. *International Journal of Transgenderism*, 13(4), 165-232.

Colizzi, M., Costa, R., & Todarello, O. (2014). Transsexual patients' psychiatric comorbidity and positive effect of cross-sex hormonal treatment on mental health: results from a longitudinal study. *Psychoneuroendocrinology*, 39, 65–73.

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